US008330314B2

(12) **United States Patent**
Hallberg

(10) **Patent No.: US 8,330,314 B2**
(45) **Date of Patent: Dec. 11, 2012**

(54) **MAGNETIC TRANSMISSION DEVICE**

(76) Inventor: **John Hallberg**, Andover, MN (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 367 days.

(21) Appl. No.: **12/652,344**

(22) Filed: **Jan. 5, 2010**

(65) **Prior Publication Data**

US 2010/0171382 A1 Jul. 8, 2010

Related U.S. Application Data

(60) Provisional application No. 61/142,455, filed on Jan. 5, 2009.

(51) **Int. Cl.**
H02K 49/10 (2006.01)
H02K 7/02 (2006.01)

(52) **U.S. Cl.** **310/103**; 310/114

(58) **Field of Classification Search** 310/103–104, 310/112–114

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,167,641	A	10/1937	Dewan	
2,657,587	A	4/1951	Volk et al.	
3,730,488	A *	5/1973	Gardner, Jr.	366/262
4,115,040	A *	9/1978	Knorr	417/420
5,013,949	A	5/1991	Mabe, Jr.	
5,457,349	A	10/1995	Gifford	
5,637,936	A	6/1997	Meador	
6,954,019	B2	10/2005	Sprain	
7,112,904	B2 *	9/2006	Akiyama	310/103
7,265,471	B2	9/2007	Sprain	
7,312,548	B2 *	12/2007	Wise	310/103
7,336,011	B2 *	2/2008	Wise	310/103
2002/0186647	A1	12/2002	Her et al.	
2005/0116567	A1	6/2005	Limb	
2006/0131887	A1	6/2006	Gosvener	
2008/0231124	A1	9/2008	Elmaleh	
2008/0238238	A1	10/2008	Sprain	

FOREIGN PATENT DOCUMENTS

WO WO 2005/064777 A1 7/2005

OTHER PUBLICATIONS

International Search Report from PCT/US2010/020100 mailed Mar. 11, 2010.

Simanek, Donald E. "Discussion of the Classic Magnetic Motor" [online, retrieved Dec. 6, 2008] <http://www.lhup.edu/~dsimanek/museum/cheng2.htm>.

* cited by examiner

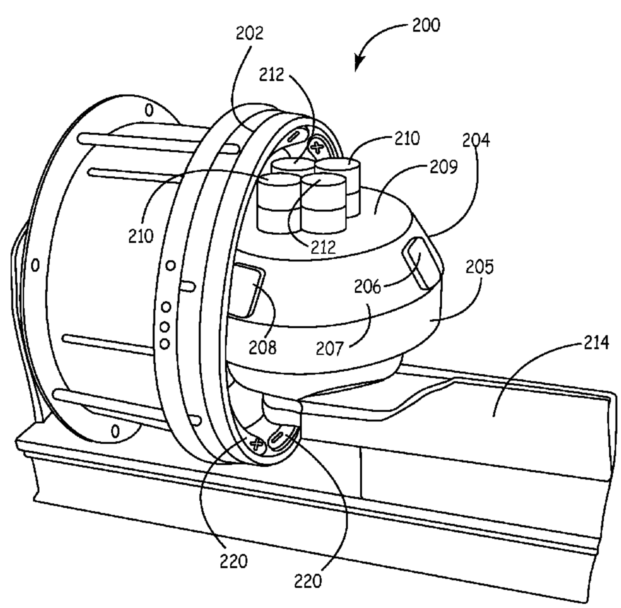
Primary Examiner — Tran Nguyen

(74) *Attorney, Agent, or Firm* — IPLM Group, P.A.

(57) **ABSTRACT**

A magnetic device that includes a first wheel and a second wheel is provided. The first wheel has a first rotational axis and a plurality of first magnets. The second wheel is received at least in part within the first wheel. The second wheel has a second rotational axis that is generally perpendicular to the first rotational axis of the first wheel. The second magnetic wheel has a plurality of second magnets. The configuration of the plurality of first magnets and the plurality of second magnets creates magnetic fields that cause one of the first and second wheels to rotate when the other of the first and second wheels rotates.

17 Claims, 10 Drawing Sheets



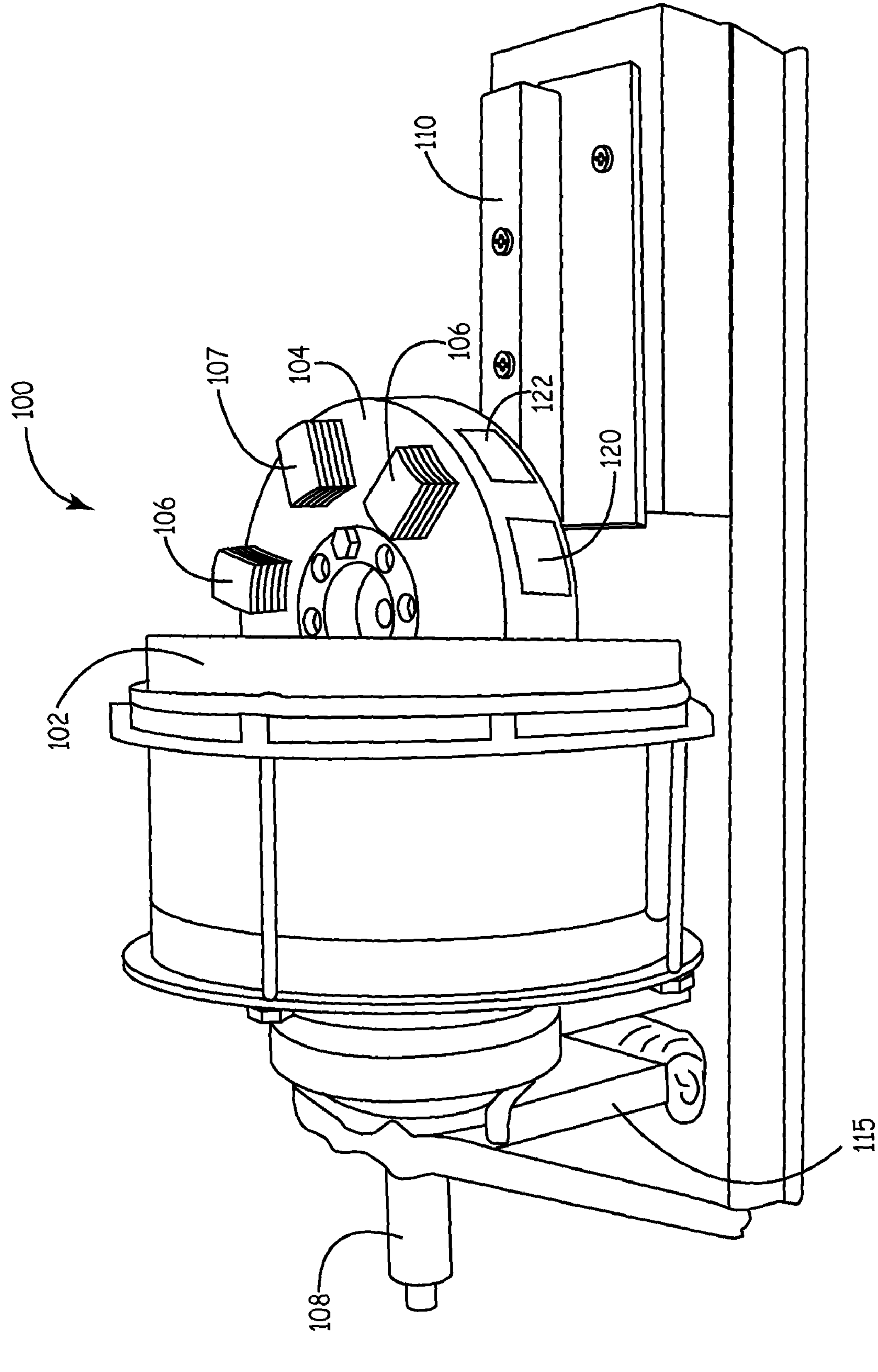


FIG. 1A

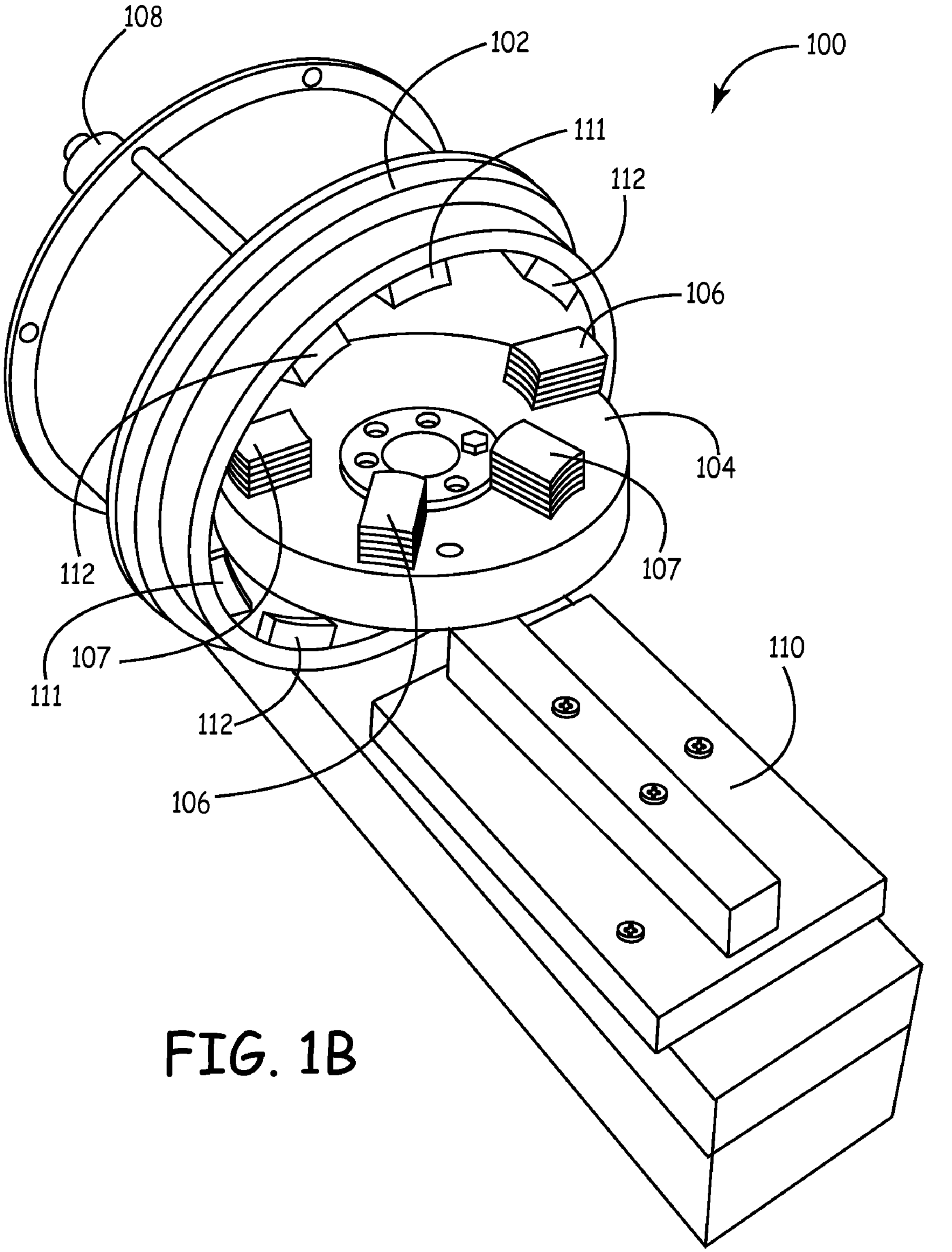


FIG. 1B

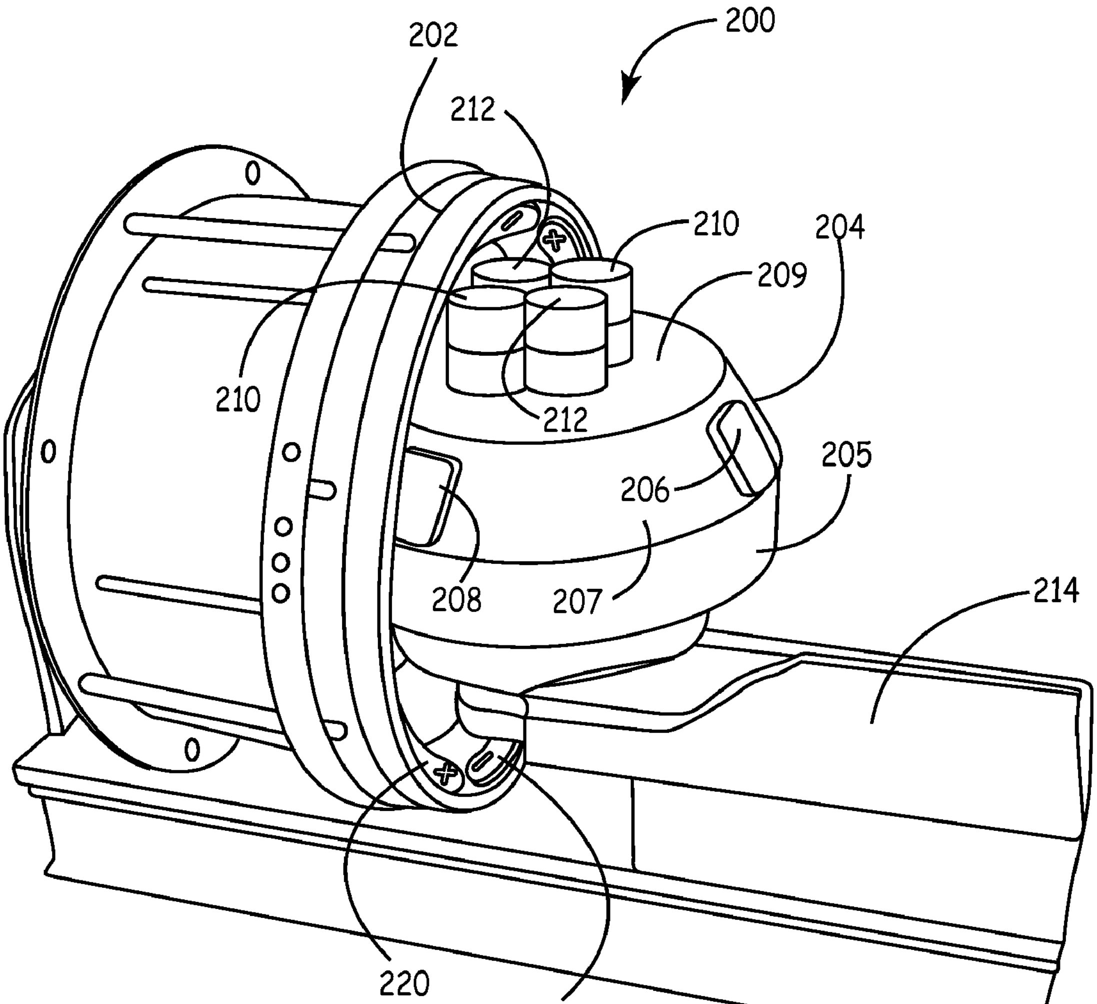


FIG. 2

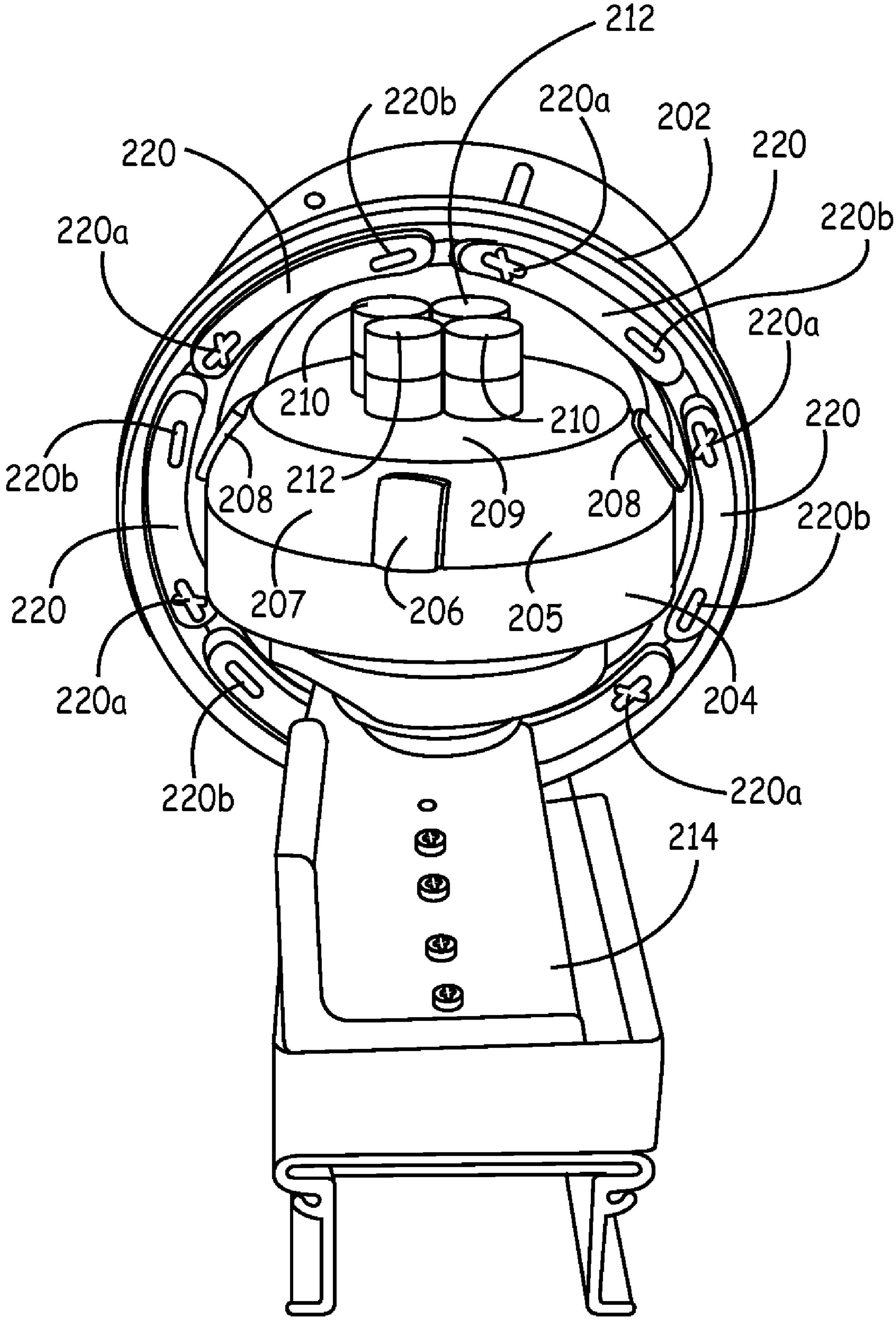

212
220b
220a
202
220
220
220b
220a
220a
220
210
210
220b
208
212
208
209
220b
220
207
206
205
220
220a
204
220a
220b
214

FIG. 3

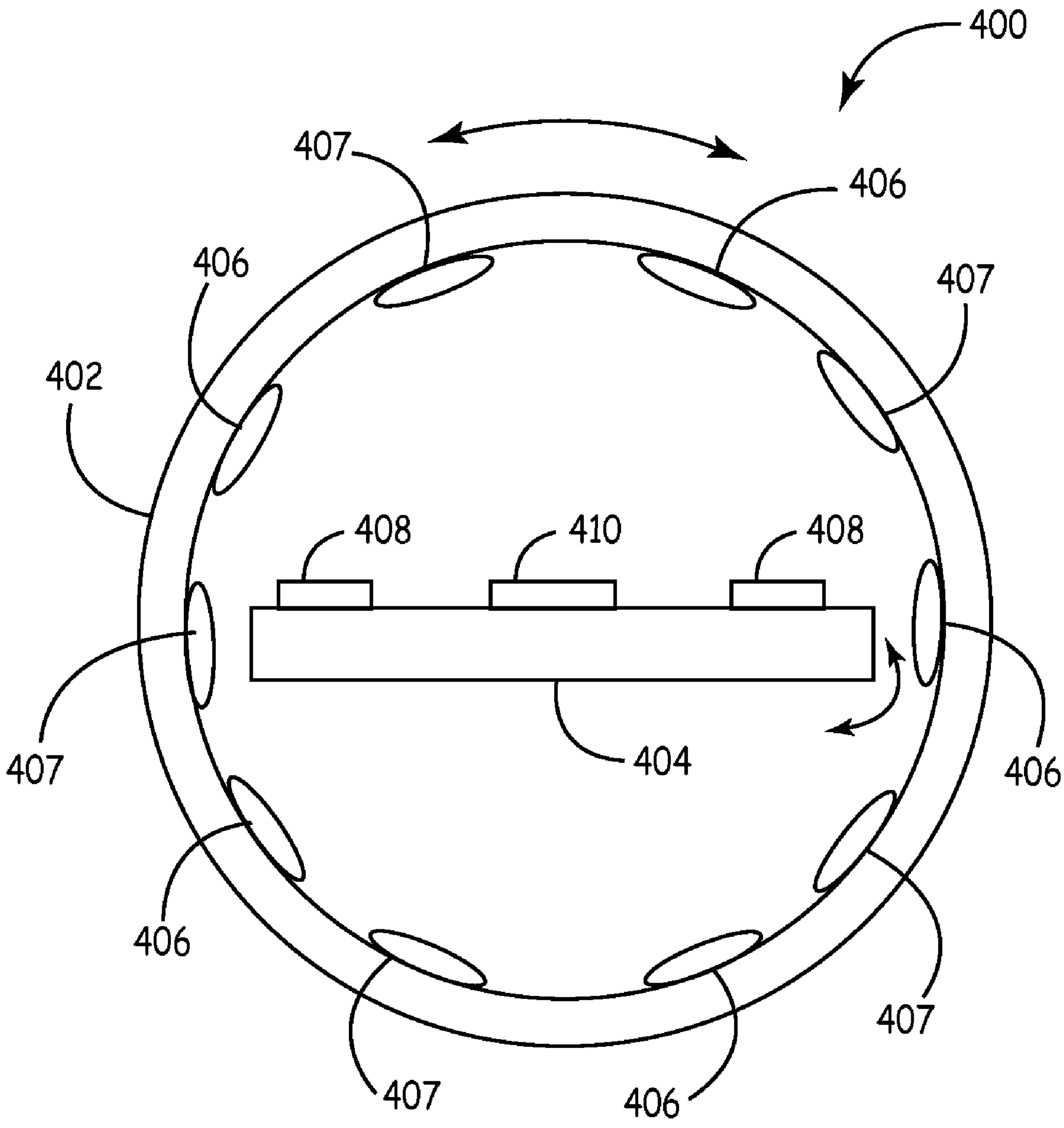


FIG. 4

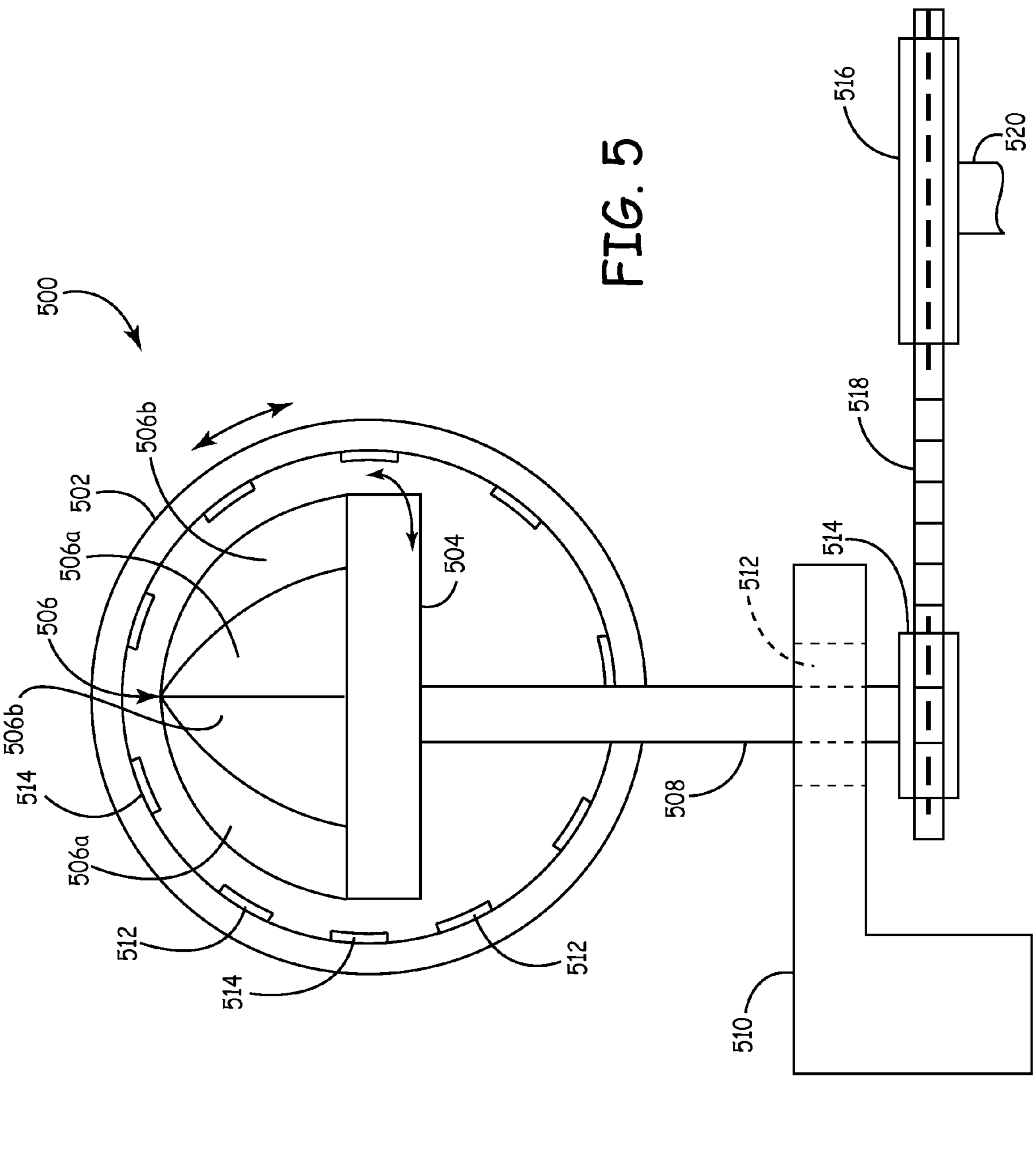

500
502
504
506
506a
506b
506a
506b
508
510
512
512
512
512
514
514
514
516
518
520

FIG. 5

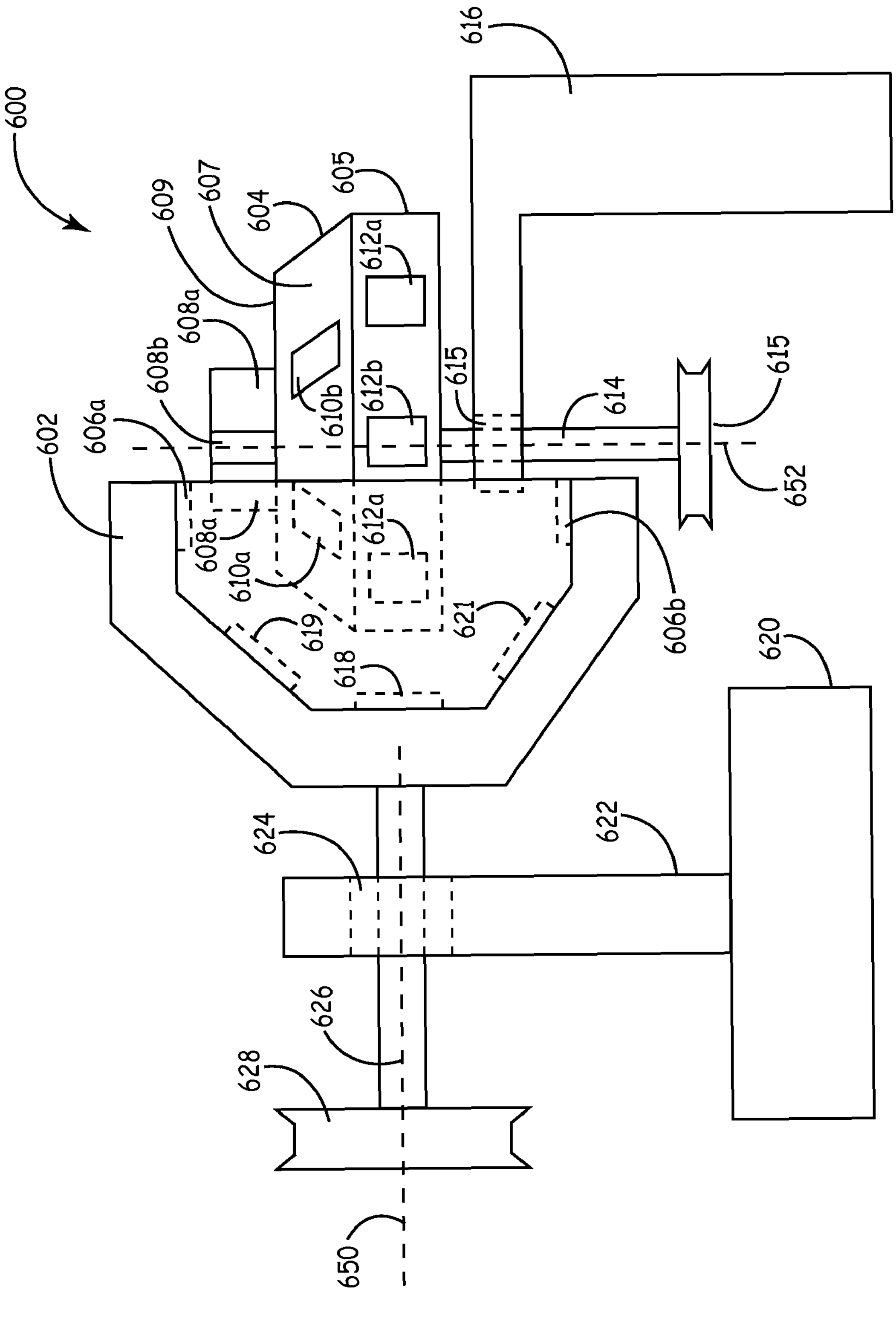

600
602
604
605
606a
606b
607
608a
608b
609
610a
610b
612a
612b
614
615
616
618
619
620
621
622
624
626
628
650
652

FIG. 6

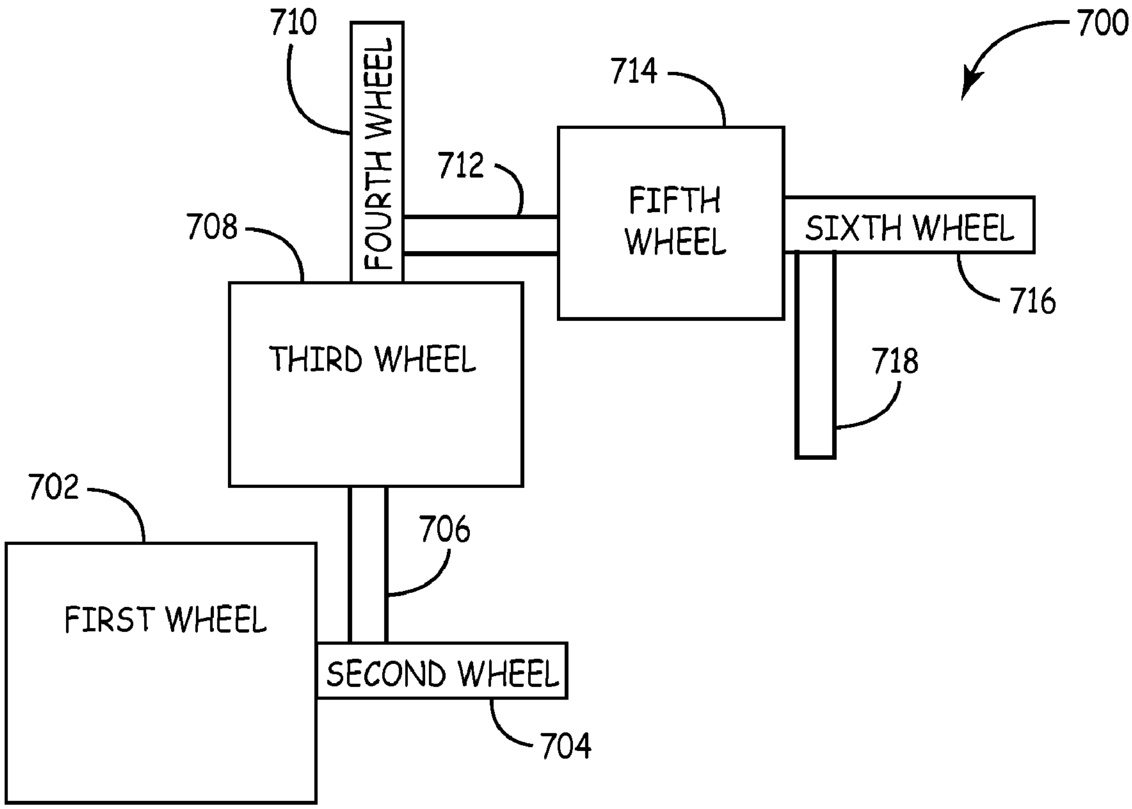

700
710
FOURTH WHEEL
714
712
FIFTH WHEEL
708
SIXTH WHEEL
716
THIRD WHEEL
718
702
706
FIRST WHEEL
SECOND WHEEL
704

FIG. 7

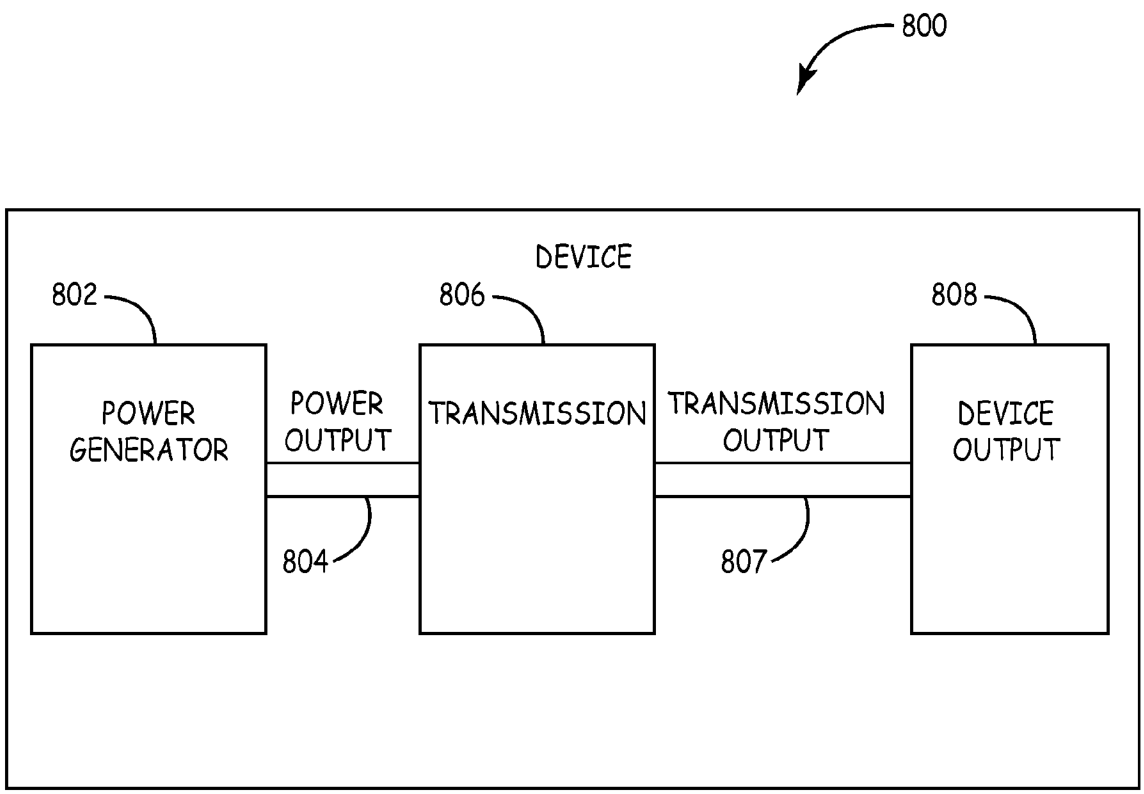

800
DEVICE
802
806
808
POWER GENERATOR
POWER OUTPUT
TRANSMISSION
TRANSMISSION OUTPUT
DEVICE OUTPUT
804
807

FIG. 8

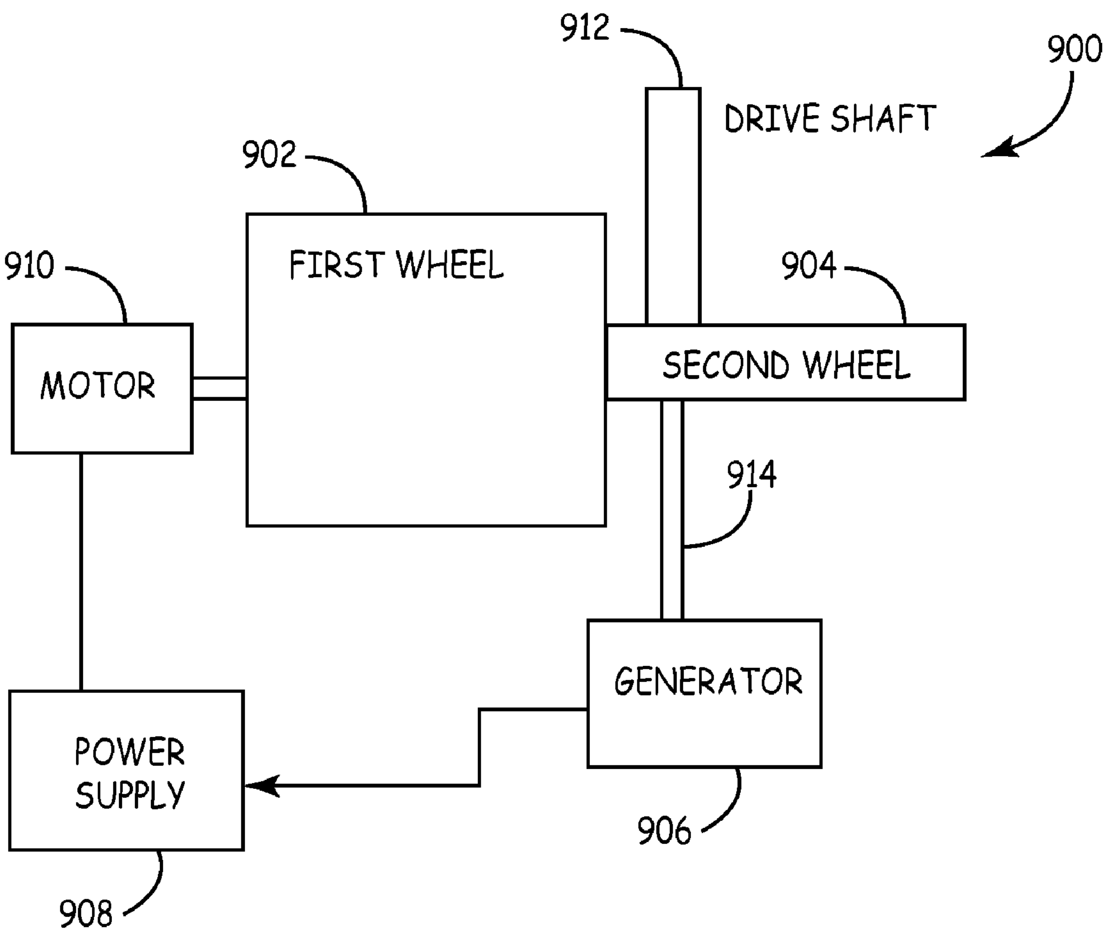

912
900
DRIVE SHAFT
902
FIRST WHEEL
910
904
MOTOR
SECOND WHEEL
914
GENERATOR
POWER SUPPLY
906
908

FIG. 9

MAGNETIC TRANSMISSION DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority to U.S. Provisional Application Ser. No. 61/142,455 having the title "Magnetic Engine", filed on Jan. 5, 2009, which is incorporated in its entirety herein by reference.

BACKGROUND

An engine coupled to a transmission provides a rotational power output to the transmission. A typical transmission takes the power output from the engine and converts it to a transmission output that has a select rotational speed and torque that may be different than the power output (i.e. changing the gear ratio). Typical transmissions change their gear ratio with the use of mated gearing. For example, a typical vehicle with a manual transmission uses different sets of gears that are locked and unlocked to an output shaft with the use of a clutch and an automatic transmission uses a planetary gear set that is manipulated by hydraulic brake fluid. In each case, gears are engaged with each other to transfer rotational motion. The use of gears physically mated to transfer rotational motion results in a loss of energy. Moreover, the gears themselves are prone to wear because of the contact which can lead to a failure of the transmission.

For the reasons stated above and for other reasons stated below which will become apparent to those skilled in the art upon reading and understanding the present specification, there is a need in the art for an improved and efficient transmission system.

SUMMARY OF INVENTION

The above-mentioned problems of current systems are addressed by embodiments of the present invention and will be understood by reading and studying the following specification. The following summary is made by way of example and not by way of limitation. It is merely provided to aid the reader in understanding some of the aspects of the invention.

In one embodiment, a magnetic device is provided. The magnetic device includes a first wheel and a second wheel. The first wheel has a first rotational axis and a plurality of first magnets. The second wheel is received at least in part within the first wheel. The second wheel has a second rotational axis that is generally perpendicular to the first rotational axis of the first wheel. The second magnetic wheel has a plurality of second magnets. The configuration of the plurality of first magnets and the plurality of second magnets creates magnetic fields that cause one of the first and second wheels to rotate when the other of the first and second wheels rotates.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention can be more easily understood and further advantages and uses thereof more readily apparent, when considered in view of the detailed description and the following figures in which:

FIG. **1**A is a side perspective view of a second wheel inside a first wheel device of one embodiment of the present invention;

FIG. **1**B is a front perspective view of the device of FIG. **1**A;

FIG. **2** is a side view of another device of an embodiment of the present invention;

FIG. **3** is a front perspective view of the device of FIG. **2**;

FIG. **4** is front view of a device of one embodiment of the present invention;

FIG. **5** is a front view of yet another embodiment of the present invention;

FIG. **6** is a side view of yet another embodiment of the present invention;

FIG. **7** is a block diagram of an arrangement of a system of devices of one embodiment of the present invention;

FIG. **8** is a implementation device in an apparatus of one embodiment of the present invention; and

FIG. **9** is a block diagram of another embodiment of the present invention.

In accordance with common practice, the various described features are not drawn to scale but are drawn to emphasize specific features relevant to the present invention. Reference characters denote like elements throughout Figures and text.

DETAILED DESCRIPTION

In the following detailed description, reference is made to the accompanying drawings, which form a part hereof, and in which is shown by way of illustration specific embodiments in which the invention may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that other embodiments may be utilized and that mechanical and electrical changes may be made without departing from the spirit and scope of the present invention. The following detailed description is, therefore, not to be taken in a limiting sense, and the scope of the present invention is defined only by the claims and equivalents thereof.

Embodiments of the present invention provide a configuration of wheels with magnets that use the attractive and repulsive forces of magnetic fields produced by the magnets to provide an effective and efficient means to provide a rotational output. In embodiments, a second magnetic wheel (a wheel having magnets placed a select locations) is received in a first magnetic wheel. The wheels, in one embodiment are positioned such that a rotational axis of the first wheel is generally perpendicular to a rotational axis of the second wheel. In addition, the positioning of the poles of the magnets and the number of poles are selected to achieve a desired gear ratio so that the turning of one of the wheels results in the other wheel rotating a select number of times as further discussed below.

Referring to FIGS. **1**A and **1**B, an example embodiment of a wheel device **100** is illustrated. As FIG. **1** illustrates, a first magnetic wheel **102** has a portion of a second magnetic wheel **104** received inside it. A rotational axis of the first magnetic wheel (along input shaft **108**) is generally perpendicular to a rotational axis of the second wheel **104**. It will be understood in the art that slight variations in the positioning of the first rotational axis in relation to the second rotational axis could still achieve a desired output to some extent. Therefore the present invention is not limited precisely to the first rotational axis being perpendicular to the second rotational axis. The first wheel **102** in this embodiment is generally cylindrical in shape having a closed end and an open end. A portion of the second wheel **104** is received in the first wheel **102** through the open end. The first magnetic wheel **102** includes magnets **112** and **111** that are near an outer parameter proximate the open end of the first wheel **102** as illustrated in the front perspective view of FIG. **1**B. Further in this embodiment, magnets **104**, **106**, **120** and **122** are placed proximate the outer perimeter of the second magnetic wheel **104**. In this embodiment, magnet **106** is positioned to create a different polarity field than the polarity of the magnetic field created by magnet **104**. Likewise, magnet **122** produces a magnetic field with a different polarity than the magnetic field produced by magnet **120**. Hence, in this embodiment, alternating magnetic polarity fields are created by the magnets **104**, **106**, **120** and **122**. In this embodiment, magnets **111** and **112** on the first wheel **102** are positioned in a plane that is generally perpendicular to a plane formed by magnets **106** and **107** on the second wheel **104**. As further illustrated, the input shaft **108** is coupled to rotate with wheel **102** in FIGS. **1**A and **1**B.

In an example embodiment, when the first magnetic wheel is rotated 102, the second wheel **104** rotates in response to the magnetic fields produced by the magnets **111**, **112**, **104**, **106**, **120** and **122**. The number of magnets **111**, **112**, **104**, **106**, **120** and **122** used, the strength of the magnetic fields produced by the magnets **111**, **112**, **104**, **106**, **120** and **122**, the orientation of the magnets **111**, **112**, **104**, **106**, **120** and **122**, the distance between magnets **111**, **112** **104**, **106**, **120** and **122** are selected to achieve a desired output rotation of the second magnetic wheel **104**. Hence, a desired rotational output of the second magnetic wheel **104** can be achieved. For example, in one embodiment, twelve magnets poles (alternating between north ((plus)) and south ((minus))) are used in the first wheel **102** and 6 magnet poles (also alternating between north and south) are used on the second wheel **104** with the magnets **106** and **107**. As a result, in one embodiment, a 2 to 1 revolution ratio is achieved. That is, in this example embodiment, the second wheel **104** will rotate 2 times for every one time the first wheel **102** rotates. Any type of magnet can be used that produces the desired magnetic field including, but not limited to, Neodymium-Iron-Boron, Ceramic, Aluminum-Nickel-Cobalt, Samarium Cobalt and electromagnets.

FIGS. **2** and **3**, further illustrated another embodiment of a device **200**. In particular, FIG. **2** illustrates a side perspective view of device **200** and FIG. **3** illustrated a front perspective view of device **200**. Similar to the device **100** illustrated and discussed above in regards to FIGS. **1**A and **1**B, Device **200** of FIGS. **2** and **3** include wheels **202** and **204**. Wheel **202** rotates about an axis that is generally perpendicular to a rotational axis of wheel **204**. In this embodiment, the second wheel **204** has an outer perimeter that includes a first surface face **205** that runs generally parallel to the rotational axis of the second wheel **204**. The second wheel **204** in this embodiment also includes a third surface face **209** that is generally perpendicular to the rotational axis of the wheel **204**. A second surface face **207** extends between the first surface face **205** and the third surface face **209**. Since, in this embodiment, the third surface face **209** does not extend all the way out to the outer parameter of the wheel **204**, the second surface face **207** tapers in from the first surface face **205** to the third surface face **209** (i.e. the second surface face is conical is shape). In the embodiment of FIGS. **2** and **3**, a plurality of alternating polarity magnets **208** and **206** are spaced around the second surface face **207**. The magnetic fields produced by magnets **208** and **206** interact with magnetic fields produced by magnets **220** on an outer perimeter of the first wheel **102**. Referring to FIG. **3**, magnets **220** around the outer perimeter of wheel **102** is illustrated. In this embodiment, magnets **220** are positioned so that they each produce a positive (north) and negative (south) field a select distance from each other. The alternating magnetic fields produced magnets **206** and **208** interact with a north magnetic field **220***b* produced by one magnet on a first side of the first wheel **202** and a south magnetic field **220***a* of another magnetic **220** on a second side of the first wheel **202**.

In the embodiment of FIGS. **2** and **3**, magnets **210** and **212** each producing a magnetic field of a select polarity are positioned on the third surface face **209** of the second wheel **204**. In this embodiment, they are placed near the rotational axis of the second wheel **204**. The magnetic fields of these magnets **210** and **212** interact with the magnetic fields produced by magnets **220** on the first wheel **202**. In the example embodiment of FIGS. **2** and **3**, magnets **212** and **210** on third surface face **209** of the second wheel **204** producing four alternating magnetic fields. Further, six magnets **220** coupled to the first wheel **202** produce twelve alternating magnetic fields that interact with the four alternating magnetic fields from the 4 magnets on the third surface **209** of the second wheel. This will produce a 3:1 revolution ratio. That is, for every one turn of the first wheel **202**, the second wheel **204** will turn 3 times. The revolution ratio can be changed by changing the number of magnetic fields produced by the first wheel **202** or the second wheel **204**. For example, if the number of different polarity fields produced by magnets of the first wheel **202** was twelve and the number of different polarity fields produced by the magnets on the second wheel **204** was six, the ratio would be 2:1. If there was an equal number of different polarity fields produced by the first wheel **202** and the second wheel (such as twelve and twelve) the ratio would be 1:1. Hence different ratios can be achieved by creating different numbers of alternating magnetic fields on the first and second wheels **202** and **204**.

Referring to FIG. **4**, a front view of a first magnetic wheel **402** having a second magnetic wheel **404** received therein in one embodiment is illustrated. FIG. **4** illustrates a plurality of magnets **406** and **407** on the first magnetic wheel **402** and a plurality of magnets **408** and **410** on the second magnetic wheel **404**. This Figure also illustrates the perpendicular arrangement of the first and second magnetic wheels **402** and **404**. In an embodiment, magnets **406** on the first wheel **402** produce magnetic fields that are opposite to magnetic fields produced by magnets **407** on the first wheel **402**. Similarly, in an embodiment, magnets **408** on the second wheel **404** produce magnetic fields that are opposite to the magnetic fields produced by magnets **410** on the second wheel **404**.

FIG. **5** illustrates, yet another embodiment. In FIG. **5**, a first wheel **502** that rotates as indicated has a second wheel **504** that is positioned at least partially in the first wheel **502**. The first wheel **502** includes a plurality of magnets **512** and **514** that produce alternating polarity magnetic fields. The second wheel **504** has generally a dome shaped portion **506** that consists of alternating pie shaped magnets **506***a* and **506***b* that produce alternating polarity magnetic fields. Also illustrated in FIG. **5** is a shaft **508** that is coupled to the second wheel **504** about the second wheels **504** rotational axis. A support **510** including a bearing **512** holds the shaft **508** and the second wheel **504** in a desired location. Proximate an end of shaft **508** is a gear **514** that is engaged with a chain, or the like, to transfer or receive rotational motion via gear **516** and shaft **520**. Although, the first wheel **502** is generally illustrated as a ring, in one embodiment, the first wheel **502** is in the shape that conforms at least in part to the shape of a second wheel such as the dome shape portion **506** of the second wheel **504**.

FIG. **6** further illustrates yet another embodiment. The first wheel **602** in this embodiment has a shape that generally conforms to surface faces **605**, **607** and **609** of the second wheel **604**. This allows for the use of more magnets **681**, **619** and **621** to produce more magnetic fields in the first wheel **602** to interact with the magnetic fields produced by magnets **612***a*, **612***b*, **610***a* and **610***b* of the second wheel **604** which results in a stronger force. Magnetic fields produced by magnets **606***a* and **606***b* also interact with magnetic fields produced by magnets **608***a* and **608***b* similar to the discussion provided above in regards to the embodiment of FIGS. **2** and **3**. As illustrated, in FIG. **6**, the first wheel **602** rotates about a rotational axis **650** about input shaft **626**. Input shaft is held in place by supports **620** and **622**. A bearing **624** is positioned around a passage in which the input shaft **624** passes through support **622**. Proximate an end of the input shaft **626** is a pulley **628**. The pulley **628** can be rotationally engaged to rotate first wheel **602**.

The rotational axis **652** of the second wheel **604** in FIG. **6** is about output shaft **614**. Output shaft **614** is coupled to second wheel **604** and passes through support **616** which holds the second wheel **604** in place. A bearing **615** is received in the passage through support **616**. Proximate the end of the shaft **614** is an output pulley **615**. The output pulley **615** can be used to provide rotational movement from the second wheel **604**. Although examples above illustrate the use of pulleys **615** and gears **514** any type of input or output arrangement known in the art could be used.

FIG. **7** illustrates a further embodiment of the arrangement of magnetic wheels **700**. As this embodiment illustrates, the present invention is not limited to just two wheels. In particular, FIG. **7** illustrates a second magnetic wheel **704** inside a first magnetic wheel **702**. Drive shaft **706** is connected between the second magnetic wheel **704** and a third magnetic wheel **708**. Drive shaft **706** provides rotation movement to the third magnetic wheel **708** in response to the rotation of the second magnetic wheel **704**. A fourth magnetic wheel **710** is received within the third magnetic wheel **708**. Drive shaft **712** is connected between the fourth magnetic wheel **710** and a fifth magnetic wheel **714**. Drive shaft **712** provides rotation movement to the fifth magnetic wheel **714** in response to the rotation of the fourth magnetic wheel **710**. A sixth magnetic wheel **716** is further received within the fifth magnetic wheel **716**. Drive shaft **718** is coupled to the sixth magnetic wheel **716** to provide a rotational output. The sizes of the first, second, third, fourth, fifth and sixth magnetic wheels **502**, **504**, **508**, **510**, **514** and **516** may be varied to achieve desired rotational outputs. Hence, multiple configurations of magnetic wheels can be used to achieve a desired rotation output. Accordingly, embodiments of the present invention can provide a desired rotational output based on the number and the dimensional characteristics of the magnetic wheels as well as the number of magnets used in each wheel, the strength of the magnets used and the orientation of the magnets. Hence, embodiments can be used to function as a transmission gearing up or down as needed. Since, the gearing in the present invention is done without the physical mating of gears, efficiency and longevity over traditional gearing systems is achieved.

Referring to FIG. **8** a block diagram of a device assembly **800** of the present invention is illustrated. The device assembly **800** of FIG. **8** includes a power generator **802** that produces a power output **804** that is coupled to a transmission **806**. The transmission **806** is one of the configurations of magnetic wheels as set out above. An output to the transmission **807** is coupled to the device output **808**. An example of the device could be any type of vehicle, such as but not limited to, a car truck, boat, plane, ATV, snowmobile or any type of device that generates movement. The transmission **806** of the present invention provides power to an output of a device **808** that is not directly linked (physically linked) to the power generator **802**. Hence, one benefit of the device is if the output is violently stopped, the result of the ceasing of movement of the output is not conveyed back to the power generator **802** where it could cause serious damage. For example, if the device assembly **800** was a lawn mower, and the transmission **806** was used to power the lawnmower blade, if the blade inadvertently strikes a rock, the magnetic field generating the motion of the transmission will simply be temporarily broken. However, since the power generator **802** is not directly connected to the output **808** no harm will occur to it or the transmission **806**. Hence, embodiments not only provide benefits of reducing wear of parts and efficiency, they also provide a slip transmission that reduces the chance of breakdown of the device.

FIG. **9**, further illustrates another block diagram of device **900** of an embodiment. This embodiment includes a motor **910** that provides rotation motion to a first wheel **902**. In response to the rotation of the first wheel **902**, the second wheel **904** rotates according to embodiments as set out above. The second wheel **904** has a drive shaft coupled about its rotation of axis to provide a rotational output. A power generating shaft **914** is also coupled about the second wheels rotation axis in an opposite side of the second wheel **904**. This power generating shaft **914** provides rotational movement to a generator **906**. The generator **906** in response provides energy to the power supply **908** to at least, in part, charge the power supply. The power supply **908** in turn powers the motor **910**. Hence, in this embodiment, the output of one of the magnetic wheels **904** is used to supply at least part of the energy to the motor **910** to increase efficiency.

Although specific embodiments have been illustrated and described herein, it will be appreciated by those of ordinary skill in the art that any arrangement, which is calculated to achieve the same purpose, may be substituted for the specific embodiment shown. This application is intended to cover any adaptations or variations of the present invention. Therefore, it is manifestly intended that this invention be limited only by the claims and the equivalents thereof.

The invention claimed is:

1. A magnetic device comprising:

a first wheel having a first rotational axis, the first wheel further having a plurality of first magnets; and

a second wheel received at least in part within the first wheel, the second wheel having a second rotational axis that is generally perpendicular to the first rotational axis of the first wheel, the second magnetic wheel having a plurality of second magnets, the configuration of the plurality of first magnets and the plurality of second magnets creating magnetic fields that cause one of the first and second wheels to rotate when the other of the first and second wheels rotate;

wherein the plurality of second magnets are located on a first surface face of the second wheel that forms a plane that is generally perpendicular to the rotational axis of the second wheel; and

wherein the second wheel has a second surface face that is cylindrical in shape extending parallel to the rotational axis of the second wheel, a plurality of fourth magnets coupled to the second surface face.

2. The magnetic device of claim **1**, wherein the plurality of first magnets of the first wheel are configured to create alternating polarity magnetic fields.

3. The magnetic device of claim **2**, wherein the plurality of second magnets of the second wheel are configured to create alternating polarity magnetic fields that interact with the alternating polarity magnetic fields created by the first magnets of the first wheel.

4. The magnetic device of claim **1**, further comprising:

the first wheel having an outer perimeter, the plurality of first magnets spaced proximate the outer perimeter.

5. The magnetic device of claim **4**, further comprising:

a third plurality of magnets coupled within the first wheel.

6. The magnetic device of claim **1**, wherein the plurality of the second magnets are positioned approximate the rotational axis of the second wheel on the first surface face.

7. The magnetic device of claim **1**, wherein the plurality of the second magnets are positioned approximate an outer perimeter of the first surface of the second wheel.

8. The magnetic device of claim **1**, wherein the second wheel has at least one third surface face extending between the first surface and the second surface face, a plurality of fifth magnets coupled to the at least one third surface face.

9. The magnetic device of claim **1**, wherein the second wheel is at least partially dome shaped.

10. The magnetic device of claim **1**, wherein the first wheel has an interior shape that at least in part conforms to at least a portion of the second wheel.

11. A magnetic transmission comprising:

a first wheel configured to rotate about a first rotational axis, the first wheel having a chamber and an opening to the chamber;

a first set of magnets positioned around the opening to the chamber of the first wheel in a configuration that generates alternating polarity magnetic fields about a circumference of the opening;

a second wheel configured to rotate about a second rotational axis, the second wheel at least partially received in the opening to the chamber of the first wheel;

a second set of magnets coupled to the second wheel, the second set of magnets being positioned to form alternating polarity magnetic fields that interact with the alternating polarity magnetic fields of the first wheel when the first wheel is rotating;

a third set of magnets coupled in the chamber of the first wheel; and

a fourth set of magnets coupled to the second wheel to create magnetic fields that interact with the magnetic fields created by the third set of magnets of the first wheel.

12. The magnetic transmission of claim **11**, wherein the first rotational axis is generally perpendicular to the second rotational axis.

13. The magnetic transmission of claim **11**, wherein at least one of the number of magnets in the first set of magnets and the second set of magnets are selected to achieve a rotational ratio between the first and second wheels.

14. An apparatus implementing a magnetic device, the apparatus comprising:

a power generator configured to generate a rotational power output;

a magnetic transmission, the magnetic transmission including,

at least one first wheel configured to rotate about a first rotational axis in response to the rotational power output of the power generator, the first wheel having an opening,

a first set of magnets positioned around the opening of each first wheel in a configuration that generates alternating polarity magnetic fields about a circumference of the opening,

at least one second wheel configured to rotate about a second rotational axis that is generally perpendicular to the first rotational axis of the at least one first wheel, the at least one second wheel at least partially received in the opening of the at least one first wheel,

a second set of magnets for each second wheel, the second set of magnets being positioned to form alternating polarity magnetic fields that interact with the alternating polarity magnetic fields of the at least one first wheel when the at least one first wheel is rotated by the power generator output

a third set of magnets coupled to the first wheel,

a fourth set of magnets coupled to the second wheel to create magnetic fields that interact with the magnetic fields created by the third set of magnets of the first wheel; and

a device output configured to implement a rotational transmission output from the at least one second wheel.

15. The apparatus of claim **14**, the power generator further comprises:

a motor;

a power supply; and

a generator, an output of the transmission configured to supply at least some energy to the generator to charge the power supply.

16. The apparatus of claim **14**, wherein the at least one first wheel and the at least one second wheel is a plurality of sets of first and second wheels.

17. The apparatus of claim **1**, wherein the number of magnetic fields created by the first and second magnets can be changed to change the rotational ratio between the at least one first wheel and the at least one second wheel.

* * * * *